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MORE Resiliency in the Rehabilitation of Active Duty Service Members

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14. ABSTRACT The purpose of our prospective cohort study is to address important knowledge gaps on resiliency in the rehabilitation of adults with lower-extremity injuries. Specific aims are to develop and test a resiliency instrument that is relevant to active duty military Service Members. The proposed project will leverage the infrastructure of the Maximizing Outpatient Rehabilitation Effectiveness (MORE) study that is currently being conducted at Brooke Army Medical Center. The first year of the project focused on selecting items from three well-established resiliency instruments that have been validated in civilian populations. Interviews and focus groups were conducted in up to 28 active duty military Service Members. A pre-test of the MORE resiliency instrument in 60 Service Members was conducted which finalized the instrument. Currently, we are testing the MORE resiliency instrument in 310 Service Members to determine reliability and construct and predictive validity of the instrument in active duty Service Members with lower-extremity injury. This project has HRPO approval and has enrolled 28 out of the 310 participants for the testing cohort phase of the project.					
15. SUBJECT TERMS Resiliency, lower-extremity injury, instrument development					
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1. INTRODUCTION:

The overall objective of this multicenter prospective study is to develop and validate a standardized measure to objectively assess resiliency following neuromusculoskeletal injury. The measure will be specifically tailored to the injured Service Member. Results from the proposed study will provide an evidence-based resiliency instrument that can be integrated into rehabilitation care in the military setting with the end goal of improving rehabilitation outcomes.

This study has 4 specific aims: 1) To select items for a resiliency instrument that address multiple dimensions of resiliency for active duty military Service Members 2) To perform a pre-test of the resiliency instrument in active duty military Service Members with lower-extremity injury for item reduction 3) To determine the reliability and construct validity of a resiliency instrument in active duty military Service Members with lower-extremity injury 4) To determine the predictive validity of a resiliency instrument in active duty military Service Members with lower-extremity injury.

This project has leveraged the infrastructure of the Maximizing Outpatient Rehabilitation Effectiveness (MORE) study that was funded by the Bridging Advanced Developments for Exceptional Rehabilitation Consortium (W81XWH-11-2-0222). We propose a three-phase design and are currently in the final phase of the project. In Phase 1, we identified the most relevant resiliency items to active duty Service Members by conducting interviews and focus groups with individuals who were enrolled in the MORE study (N=28). In Phase 2, we conducted a pre-test to refine and eliminate items that performed poorly (N=60). In Phase 3, we are currently conducting a prospective cohort study to determine reliability and construct and predictive validity. For this phase, we plan to recruit up to 310 MORE participants from the Carl R. Darnall Army Medical Center.

2. KEYWORDS:

resiliency, instrument development, reliability, validity, lower-extremity trauma, rehabilitation outcomes

3. ACCOMPLISHMENTS:

What were the major goals of the project?

	Timeline (Months)	% Complete
Major Task 1: Regulatory Approval		
Milestone(s) Achieved		
Local IRB Approval	12	100%
USAMRMC HRPO Approval	14	100%
Personnel Hired	12	100%
Major Task 2: Participant Interviews		
Milestone(s) Achieved:		
Interviews Completed	19	100%
Qualitative Model and Narratives Completed	20	100%
Major Task 3: Participant Focus Groups		
Milestone(s) Achieved:		
Focus Groups Completed	21	100%
Initial Resiliency Instrument Completed	22	100%

Major Task 4: Pre-Test of Instrument		
Milestone(s) Achieved:		
50 Participants Complete the Pre-test	26	100%
Resiliency Instrument Finalized	28	100%
Major Task 5: Test-Retest Reliability		
Milestone(s) Achieved:		
Test-Retest Reliability Completed: 9/50	34	18%
Major Task 6: Construct Validity		
Milestone(s) Achieved:		
Construct Validity Completed: 28/310	46	9%
Major Task 7: Predictive Validity		
Milestone(s) Achieved:		
Predictive Validity Completed: 1/310	48	3%
Final Report Completed	48	0%

What was accomplished under these goals?

For this reporting period, major activities included obtaining HRPO approval for Phase 3 of the study and starting enrollment for reliability and validity testing of the MORE resiliency instrument. The phase 3 participants are receiving the 20-item resiliency instrument that was created from 3 well-established resiliency instruments for civilians (i.e., Connor-Davidson, Resilience Scale for Adults, and the 25-item Resilience Scale). These 20 items cover the following resiliency constructs: hardiness, persistence, personal competence/strength, acceptance of self/life, personal structure, social competence, and family cohesion/social support. A copy of the resiliency instrument is submitted with this report. The reliability and validity test enrollment is occurring at Carl R. Darnall Army Medical Center at Fort Hood. Patients are approached for enrollment in the physical therapy clinic and can complete the instrument by survey or through an interview with study staff. To date, we have enrolled 28 out of 310 participants for Phase 3 testing. Of those enrolled, all 28 participants have completed the MORE resiliency instrument at baseline by survey as well as the other study questionnaires that are needed to assess construct validity. Demographics of these participants are as follows: 5 females (18%) and 23 males (82%); 2 American Indian or Alaskan Native, 2 Native Hawaiian or Other Pacific Islander, 6 Black or African American, 15 White, 1 Asian, and 2 unknown race; 7 individuals are Hispanic or Latino (25%).

Of the 28 participants who completed the baseline survey, 9 have completed the MORE resiliency instrument a second time within 1 week to establish test-retest reliability and 1 participant has completed the study (i.e., completed discharge assessment).

Please see below for a more detailed description of enrollment for Phase 3 testing (Table 1):

Table 1. Screening, Enrollment, and Data Collection for Phase 3 Testing.

Screened	45
Exclusions	17
in field	4
not returning to PT	3
pregnant	1
cannot commit the time	5
having another surgery	1
not interested	1
lack of severity of injury	2
Consented	28
Completed Baseline Surveys	28
Withdrawal	1
Completed Retest	9
Completed Discharge	1

What opportunities for training and professional development has the project provided?

Nothing to Report

How were the results disseminated to communities of interest?

Nothing to Report

What do you plan to do during the next reporting period to accomplish the goals?

During the next reporting period, we plan on completing the prospective testing of the MORE resiliency instrument in order to assess reliability and validity.

4. IMPACT:

What was the impact on the development of the principal discipline(s) of the project?

Nothing to Report

What was the impact on other disciplines?

Nothing to Report

What was the impact on technology transfer?

Nothing to Report

What was the impact on society beyond science and technology?

Nothing to Report

5. CHANGES/PROBLEMS:

Changes in approach and reasons for change

There have been no major changes in approach during this reporting period.

Actual or anticipated problems or delays and actions or plans to resolve them

During this reporting period, Phase 3 was delayed due to a longer than expected HRPO approval process. It took over 5 months to receive HRPO approval for phase 3 reliability and validity testing of the MORE resiliency instrument. This delayed the amendment submission for the revised resiliency instrument and the start of enrollment for the testing cohort. However, now that we have HRPO and IRB approval we do not anticipate any other delays for the remainder of the study.

Changes that had a significant impact on expenditures

Due to the delay in IRB and HRPO approval, the personnel and research related expenditures have been lower than expected for the reporting period. We will be using funds from years 1-3 for our NCE.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Nothing to Report

Significant changes in use or care of human subjects

Nothing to Report

Significant changes in use or care of vertebrate animals.

Not Applicable

Significant changes in use of biohazards and/or select agents

Not Applicable

6. PRODUCTS: List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state "Nothing to Report."

- **Publications, conference papers, and presentations**

Nothing to Report

Journal publications. Nothing to Report

Books or other non-periodical, one-time publications. Nothing to Report

Other publications, conference papers, and presentations. Nothing to Report

- **Website(s) or other Internet site(s)**

Nothing to report

- **Technologies or techniques**

Nothing to report

- **Inventions, patent applications, and/or licenses**

Nothing to report

- **Other Products**

Nothing to report

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?

Name: Kristin Archer

Project Role: PI

Nearest person month worked: 1

Contribution to project: Developed protocol and all IRB documents, HRPO submission, oversee pre-test analysis and finalizing of instrument, completed quarterly reports and annual report

Name: Amy Bowles

Project Role: Site PI BAMC

Nearest person month worked: 1

Contribution to project: Oversight of BAMC IRB submission and recruitment

Name: Jason Wilken

Project Role: Co-investigator

Nearest person month worked: 1

Contribution to project: Provided expert advice on enrollment and amendments, participated in weekly team conference calls

Name: Stephen Wegener

Project Role: Co-investigator

Nearest person month worked: 1

Contribution to project: Provided expert advice on resiliency and helped interpret analysis to finalize instrument

Name: David Schlundt

Project Role: Co-investigator

Nearest person month worked: 1

Contribution to project: Conducted qualitative analysis, trained study personnel in cognitive interviewing

Name: Shannon Block

Project Role: Project Director

Nearest person month worked: 1

Contribution to project: Assisted with preparing amendments and IRB submission for Aims 3 and 4, participated in weekly team conference calls, auditing data for completeness, training of personnel on recruitment and data collection

Name: Molly Pacha

Project Role: Collaborator

Nearest person month worked: 1

Contribution to project: Helped prepare documents for IRB and HRPO amendment submissions and scheduled weekly conference calls for the team

Name: Kemberlee Bonnet
Project Role: Collaborator
Nearest person month worked: 1
Contribution to project: Assisted with qualitative analysis

Name: Whitney Kiyua
Project Role: Research Physical Therapy Technician
Nearest person month worked: 2
Contribution to project: Enrolled participants for the pre-test and pilot test and helped reschedule appointments when needed

Name: Andrew Valentine
Project Role: Research Physical Therapy Technician
Nearest person month worked: 2
Contribution to project: Enrolled participants for the pre-test and pilot test and helped reschedule appointments when needed

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

Nothing to report

What other organizations were involved as partners?

Organization Name: University of Iowa

Location of Organization: Iowa City, IA

Partner's contribution to the project:

Collaboration on protocol and IRB documents as well as development of resiliency instrument

Organization Name: Johns Hopkins Medicine

Location of Organization: Baltimore, MD

Partner's contribution to the project:

Collaboration on protocol and IRB documents as well as development of resiliency instrument

Organization Name: Carl R. Darnall Army Medical Center

Location of Organization: Fort Hood, TX

Partner's contribution to the project:

Collaboration on protocol and IRB documents, development of resiliency instrument, enrollment and data collection

Organization Name: Center for the Intrepid

Location of Organization: SAMMC, JBSA Fort Sam Houston, TX

Partner's contribution to the project:

Collaboration on protocol and IRB documents, development of resiliency instrument

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: N/A

QUAD CHARTS: Submitted

Appendix I: Final 20-Item MORE Resiliency Instrument

For each item, please mark an “x” in the box below that best indicates how much you agree with the following statements as they apply to you in your military or personal life. If a particular situation has not occurred recently, answer according to how you think you would have felt.

		Not true at all (0)	Rarely true (1)	Sometimes true (2)	Often true (3)	True nearly all the time (4)
1.	Having to cope with stressful situations can make me stronger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	I tend to bounce back after illness or injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	I am not easily discouraged by failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	I am able to handle unpleasant or painful feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	When something unforeseen happens I find a solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	In difficult periods, I have a tendency to find something that helps me thrive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	I manage to come to terms with events in my life that I cannot influence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	I feel that my future looks very promising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	I am able to depend on myself more than anyone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	I feel that I can handle many things at a time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	I am determined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.	I have self discipline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	I can usually look at a situation in a number of ways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Sometimes I make myself do things whether I want to or not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.	I can usually find something to laugh about	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	I am at my best when I have a clear goal to strive for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.	I enjoy being together with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	I discuss personal issues with friends/family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	I get support from friends/family members	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.	When needed, I have someone who can help me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>